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Impact of War Trauma and Posttraumatic Stress Disorder on Psychopathology in Croatian and German Patients with Severe Mental Illness

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Aim To explore posttraumatic stress symptoms and current psychopathology in a binational sample of Croatian and German participants with severe mental illness.

Methods We studied 178 inpatients from the Greifswald University (German patients, n = 89) and University Hospital Zagreb and Ivan Barbot Neuropsychiatric Hospital (Croatian patients, n = 89) with either major depression (n = 150), schizophrenia (n = 26), or bipolar disorder (n = 2). Measurements included Posttraumatic Diagnostic Scale and the Symptom Check List-90-R. Participants were matched according to age, sex, and diagnosis.

Results Croatians reported significantly more war traumatic events (64/82 vs 5/74, $\chi^2_1 = 77.142$, $P < 0.001$) and significantly more Croatians met the criteria for posttraumatic stress disorder (55/89 vs 27/89, $\chi^2_1 = 17.73$, $P < 0.001$). They also suffered from a higher level of psychopathological distress as they scored significantly higher at all Symptom Check List-90-R revised version subscales ($P < 0.001$). The regression models demonstrated that predictors of general psychopathological distress were war trauma ($P < 0.001$), posttraumatic stress disorder ($P < 0.001$), and diagnosis ($P = 0.01$).

Conclusion This is the first study comparing the impact of war trauma on psychopathology of participants with severe mental illness between two nations. Our results clearly indicate the importance of trauma assessment in subjects with severe mental illness, particularly in post-conflict settings.

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Posttraumatic stress disorder (PTSD) is an anxiety disorder that develops after exposure to an extremely traumatic event. It is characterized by intrusive recollections, emotional numbing, avoidance behavior, and symptoms of vegetative hyperarousal (1). Lifetime prevalence in the European general population amounts to 1.9%, with higher rates for women (2.9%) than men (0.9%) (2).

Patients with severe mental illness, such as major depressive disorder, bipolar disorder, or schizophrenia represent a high-risk group for trauma and subsequent development of PTSD (3-5). This group has markedly increased PTSD prevalence rates of 13%-43% (5-7). It has also been shown that they are frequently exposed to traumas arising from interpersonal conflicts such as rape and violence by an intimate partner (6,8,9).

War might be considered as one of the most horrifying human experiences. It is a complex, long lasting trauma composed of multiple stressors, such as physical harm, intimidation, loss of loved ones, deprivation, abuse, and starvation (10,11). In an attempt to expand our understanding of the impact of war trauma and PTSD on psychopathology of participants with severe mental illness, we conducted a binational study to explore whether the type of trauma, PTSD, and psychopathology varied among Croatian and German participants with severe mental illness. It was designed on the premise that Croatia and Germany have moderate cultural differences. Apart from civilian and Second World War traumas that are common to both nations, Croatians were exposed to traumatic experiences during the recent 1991-1995 war (11-14). The aim of this study was to assess the amount and type of trauma, posttraumatic stress symptoms, and current psychopathology in Croatian and German participants with severe mental illness.

METHODS

Participants

The study was performed over a six-month period (January to June 2007), when all eligible patients from the University Department of Greifswald (Greifswald, Germany), University Hospital Zagreb (Zagreb, Croatia), and Ivan Barbot Neuropsychiatric Hospital (Popovača, Croatia) were offered to participate in the study. Hundred and seventy eight inpatients were included – 89 German patients and 89 Croatian patients – with either major depression (n = 150), schizophrenia (n = 26), or bipolar disorder (n = 2). All participants underwent a standard clinical interview and severe mental illness diagnoses were given according to the International Classification of Diseases-10 criteria (1). The inclusion criteria were diagnosis of 1 of the

TABLE 1. Demographic characteristics of the Croatian (n = 89) and German (n = 89) study participants

No. (%) of participants	Total sample* (n = 178)	Croatians (n = 89)	Germans (n = 89)	Statistics†
Male participants	93 (52.2)	47 (52.8)	46 (51.7)	$\chi^2 = 0.023$, $P = 0.5$
Marital status:				
married	102 (57.3)	61 (68.5)	41 (46.1)	$\chi^2 = 9.18$, $P = 0.002$
single	32 (17.9)	15 (16.9)	17 (19.1)	$\chi^2 = 0.1523$, $P = 0.696$
divorced	35 (19.7)	11 (12.4)	24 (26.9)	$\chi^2 = 6.010$, $P = 0.014$
widowed	5 (2.8)	0	5 (5.6)	–
Household:				
living alone	80 (44.9)	51 (57.3)	29 (32.6)	$\chi^2 = 8.304$, $P = 0.004$
living with parents, partner or friends	41 (23.03)	37 (41.6)	4 (4.5)	
Education:				
elementary school	17 (9.5)	16 (17.9)	1 (1.12)	–
high school	104 (58.4)	61 (68.5)	43 (48.31)	$\chi^2 = 15.567$, $P = 0.008$
university degree	9 (5.06)	9 (10.11)	0	–
Employment:				
fully employed	52 (29.2)	36 (40.5)	16 (17.9)	$\chi^2 = 10.866$, $P = 0.001$
part time job	2 (1.12)	1 (1.12)	1 (1.12)	-
unemployed	19 (10.7)	9 (10.11)	10 (11.2)	$\chi^2 = 0.058$, $P = 0.808$
retirement	26 (14.6)	23 (25.8)	3 (3.4)	–

*There were some incomplete responses, which is why the reported number of participants varies among the groups.
†χ^2 test with Yates' correction for continuity was used to compare frequencies of given parameters between the subgroups.

3 above mentioned illnesses and willingness to participate in the study. Participants were matched according to age, sex, and diagnosis. In order to analyze only matching patient pairs, 164 participants were not included in the analysis.

The mean age of participants was 44.2 ± 8.2 years; 85 (48%) were women and 93 (52%) were men. Croatian patients were more frequently married (57/89 vs 36/89, $\chi^2_4 = 9.18$, P = 0.002), lived more frequently alone (51/89 vs 29/89, $\chi^2_4 = 9.622$, $P = 0.047$), had higher level of education (61/89 vs 43/89, $\chi^2_5 = 15.567$, $P = 0.008$), and significantly more frequently had a full-time employment than German patients (36/89 vs 16/89, $\chi^2_1 = 10.866$, $P = 0.001$) (Table 1).

The study was approved by ethical committees of the 3 participating institutions. All participants gave informed consent and were above 18 years of age.

Measures

Patients were asked to complete the Posttraumatic Diagnostic Scale (PDS) and the Symptom Check List-90, revised version (SCL-90-R). The questionnaire also included items related to sociodemographic variables such as age, sex, marital status, education level, and employment. The PDS is a 49-item self-report instrument for the assessment of PTSD (15). The items correspond to A-F DSM-IV criteria (16) and patients who meet all 6 criteria are likely to have the diagnosis. Criterion A1 is covered by a checklist of 12 traumatic events. When completing the subsequent sections including criterion A2, B (5 re-experiencing symptoms), C (7 avoidance symptoms), and D (5 arousal symptoms), individuals with more than one trauma are asked to refer to the most distressing event. The frequency of each of the 17 symptoms in the past month is rated on a 4-point scale. Additionally, the scale assesses duration of PTSD and the subsequent impairment in different life areas, and quantifies the symptom severity by summing up the individual's responses corresponding to the PTSD symptom clusters of intrusions, avoidance, and arousal.

SCL-90-R is a 90-item self-report clinical rating scale widely used to measure current psychopathology (17). In addition to a global rating (Global Severity Index, GSI), it comprises 9 subscales: somatization, obsessive compulsion, interpersonal sensitivity, depression, anxiety, anger-hostility, phobic anxiety, paranoid ideation, and psychoticism. The reliability and validity of the German version of the SCL-90-R is similar to the original version (18).

Statistical analysis

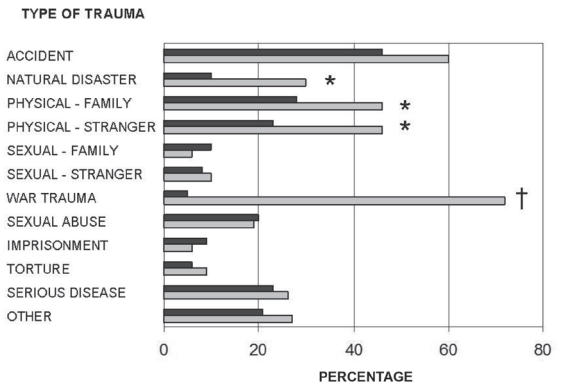
The data analyses were performed using the SPSS, version 11.5 (SPSS Inc., Chicago, IL, USA). We used χ^2 tests and multivariate analyses of variance (MANOVA). Finally, to assess the impact of war trauma and PTSD on the general psychopathological distress, we performed a linear regression with the GSI of the SCL-90 as the dependent variable. Significance level was established at $P < 0.05$.

RESULTS

A total of 82 Croatian patients (93.3%) and 74 German patients (84.1%) reported having experienced at least one lifetime trauma (Figure 1). Croatian patients reported significantly more traumatic events in the categories of war trauma, physical assault, and natural disaster. Sixty four Croatian patients (78.0% of those who reported having experienced at least one traumatic event) and 5 German patients (6.8%) reported having experienced war trauma and the difference was highly significant (64/82 vs 5/74, $\chi^2_1 = 77.142$, $P < 0.001$). German patients more frequently experienced sexual assaults in the family, sexual abuse, and imprisonment, but the differences did not reach statistical significance.

According to the Posttraumatic Diagnostic Scale, 55 Croatian patients (61.8%) and 27 German patients (30.4%) met the DSM-IV criteria for PTSD (55/89 vs 27/89, $\chi^2_1 = 17.73$, $P < 0.001$). Based on these results, we decided to explore this issue in more depth and assigned the patients to the following groups: 1) participants without PTSD only (n = 96)

Figure 1.



Traumatic events reported by German (closed bars) and Croatian (gray bars) patients with serious mental illness (n = 178). * $P < 0.05$; † $P < 0.001$ (χ^2 test).

TABLE 2. Linear regression model for predicting the Global Severity Index*

Model		Unstandardized coefficients		Standardized coefficients		
		B	standard error	β	*t* value	*P* value
1	Constant	1.319	0.425		3.103	0.002
	sex	-0.034	0.123	-0.02	-0.279	0.781
	diagnosis	-0.345	0.148	-0.166	-2.342	0.02
	age	0.01	0.007	0.097	1.395	0.165
	war trauma	0.672	0.124	0.384	5.413	<0.001
2	Constant	1.036	0.368		2.813	0.005
	sex	0.052	0.107	0.031	0.488	0.626
	diagnosis	-0.33	0.127	-0.158	-2.595	0.01
	age	0.007	0.006	0.064	1.07	0.286
	war trauma	0.411	0.112	0.235	3.658	<0.001
	posttraumatic stress disorder	0.831	0.108	0.488	7.67	<0.001

*The independent categorial variables were coded as follows: sex (1 = male), diagnosis (1 = depression), war trauma (1 = experience of war trauma).

and 2) the whole sample of 178 patients. There were significant national differences between the two groups with respect to the GSI as a global marker of psychopathological distress (SCL-90-R). Among the participants without PTSD, we found no significant difference between Croatian and German patients. However, looking at the whole sample, we found that Croatian patients suffered from a higher level of psychopathological distress as they scored significantly higher at all SCL-90-R subscales ($P < 0.001$). Moreover, Croatian patients with PTSD had significantly higher psychopathological distress score measured by the GSI than German PTSD patients ($P < 0.001$).

To explore whether or not war trauma and PTSD were associated with the symptom severity, we performed a linear regression analysis with the GSI of the SCL-90-R as dependent variable, and sex, diagnosis, age, war trauma, and PTSD as independent variables. War trauma, PTSD, and diagnosis predicted general psychopathological distress (Table 2).

DISCUSSION

Our study showed that Croatian patients with severe mental illness reported significantly more traumatic events (with war, natural disasters, and physical assaults being the top 3) and suffered from more PTSD symptoms. Also, Croatian patients with PTSD suffered from greater psychopathological distress than German patients with PTSD.

Even though traumatic experiences commonly occur in the general population, most do not lead to PTSD. However, when PTSD does develop, it is rarely the only disorder in a person because high rates of comorbidity are common (19). For example, our previous study on Croatian and Bosnian women who were raped during the 1991-1995 war showed that PTSD often occurred in comorbidity with depression and social phobia (11). Most studies that deal with people with PTSD describe their psychopathological profiles and comorbid states. We used an opposite approach and demonstrated that the majority of our participants with affective disorders or schizophrenia reported having experienced at least one trauma over their lifetime. Moreover, almost half of them met the DSM-IV criteria for PTSD. These rates were higher than in our previous study, in which 68% of 122 German participants with severe mental illnesses reported at least one trauma and 23% met the criteria for the current PTSD (20).

Engel (21) described the so-called giving-up-given-up state, which happens when illness overwhelms the person's capacity to cope with the stress and produces a state of depression and feelings of hopelessness and helplessness. As traumatic experience is always associated with a loss, and traumatic loss is almost always associated with a life threatening or horrific experience (22), we can say that individual resilience might be significantly compromised by any kind of traumatic experience. We found that PTSD significantly predicted the general psychopathological distress (as measured by SCL-90-R, GSI), which supports the hypothesis of high vulnerability of participants with severe mental illness, in whom development of chronic PTSD might significantly mediate psychopathology and the course of illness (4,20). It has been proposed that PTSD can directly and indirectly influence the course and severity of severe mental illness. The indirect effects include substance abuse, re-traumatization, and poor treatment compliance, while direct effects are theoretically mediated by

the core symptom clusters that define PTSD, ie, avoidance of trauma-related stimuli, distress due to re-experiencing the trauma, and hyperarousal (1,2).

Another significant predictor of general psychopathological distress, as measured by SCL-90-R and GSI in our study, was war trauma. This might also indicate that this type of trauma carries the highest risk for long term psychopathological consequences in participants with severe mental illness. Croatian patients in our study reported considerably more war-related traumas, which was expected since they had experienced the 1991-1995 war in their country. Furthermore, we found that Croatian PTSD patients showed a significantly higher level of psychopathological distress than Germans, with significant PTSD symptomatology. Interestingly, the only two categories in which Germans reported more traumatic events were sexual assaults in the family and sexual abuse. A number of studies have explored the relationship between different types of trauma and risk for causing PTSD and found that among various civil traumatic events, sexual assaults, and sexual abuse carry a higher risk for PTSD than events without interpersonal component, such as motor vehicle accidents and natural disasters (23,24). Moreover, it has been found that a greater duration or intensity of exposure to trauma increases the risk in a dose-dependent manner, which might be especially true for combat experiences that usually span over longer periods of time (25), but could also be applied to sexual abuse in families.

There are several limitations of this study. PTSD diagnoses were based on a self-report screening instrument and were not cross-validated by a structured interview, so they should be considered as presumptive. Also, patients' traumatic events were retrospectively assessed and therefore recollection biases are possible, even though results from a recent study of Mollica et al on a sample of highly traumatized Bosnian refugees showed great consistency of traumatic memories over time (25). Although both Croatian and German patients were recruited from open psychiatric wards with a multimodal treating program targeting bio-psycho-social influences on disease, cultural differences between these groups of patients can never be totally negotiated. Despite these limitations, this is the first comparison of the impact of war trauma and PTSD on psychopathology of participants with severe mental illness between two nations. We clearly showed that those who scored higher on the PDS scale also suffered from more severe psychopathological distress. Therefore, we believe that our results clearly indicate the importance of the exposure to trauma and the need for PTSD assessments in patients with severe mental illness. Since unreported traumatic experiences often contribute to underdiagnosing PTSD in everyday clinical practice (26,27), future work should focus on development of useful diagnostic and therapeutic strategies in different, notably post-conflict settings.

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